WHAT IS CLAIMED IS:

1. A defect inspection apparatus for inspecting a defect of a substrate as an object to be inspected, comprising:

an illumination optical system for illuminating said substrate;

a receiving optical system for receiving diffracted light from said substrate; and

a polarizing element provided in either one of said illumination optical system or said receiving optical system.

2. A defect inspection apparatus for inspecting a defect of a substrate as an object to be inspected, comprising:

an illumination optical system for illuminating said substrate;

a receiving optical system for receiving diffracted light from said substrate;

a first polarizing element provided in said illumination optical system; and

a second polarizing element provided in said receiving optical system.

3. A defect inspection apparatus according to claim 2 further comprising a quarter wave plate provided between said substrate and said first

polarizing element or between said substrate and said second polarizing element.

4. A defect inspection apparatus according to any one of claims 1 to 3 further comprising image pickup means for picking up an image of said substrate formed by said diffracted light received by said receiving optical system and an image processing apparatus for performing image processing based on an output from said image pickup means to detect a defect of said substrate.

5. A method of inspecting a surface defect of a substrate as an object to be inspected, comprising the steps of:

illuminating said substrate with linearly polarized illumination light;

picking up an image of said substrate formed by diffracted light from said substrate; and

processing the picked up image to detect a defect of said substrate.

6. A method of inspecting a surface defect of a substrate as an object to be inspected, comprising the steps of:

illuminating said substrate with illumination light;

picking up an image of said substrate formed by certain linearly polarized light included in diffracted light from said substrate; and

processing the picked up image to detect a defect of said substrate.

7. A defect inspection method according to claim 5, wherein said linearly polarized light included in the diffracted light is S-polarized light.

8. A defect inspection method according to claim 6, wherein said linearly polarized light included in the diffracted light is S-polarized light.

9. A method of inspecting a surface defect of a substrate as an object to be inspected, comprising the steps of:

illuminating said substrate with linearly polarized illumination light;

picking up an image of said substrate formed by certain linearly polarized light included in diffracted light from said substrate; and

processing the picked up image to detect a defect of said substrate.

10. A method of inspecting a surface defect of a substrate as an object to be inspected, comprising

the steps of:

illuminating said substrate with linearly polarized illumination light;

picking up an image of said substrate utilizing light remaining after certain linearly polarized light included in diffracted light from said substrate has been removed; and

processing the picked up image to detect a defect of said substrate.

11. A method of inspecting a hole pattern, in which a defect of a hole pattern formed on a surface of a substrate is detected by a defect inspection method according to any one of claims 5 to 10.